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SOME REASONS FOR FAILURE WITH ALFALFA

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ACROP that will produce from four to six tons of hay of the best quality each year, is naturally one that attracts the attention of farmers everywhere. Alfalfa is the red clover of the west, for beyond the Missouri river it is raised as commonly as is red clover in the east. Its advantage over red clover is in furnishing a slightly more nutritious forage and a much heavier yield of hay per acre. Professor Hunt in his book, "Cereals in America," has called attention to the fact that the census of 1900, reports the total yield of alfalfa hay in the United States as slightly larger than that of clover hay, but that it is produced on about one half the area. It also appears that the present yield of alfalfa hay in New York state is twice that of clover hay according to statistics quoted in Bulletin 121 of the Cornell Experiment Station.

A strong effort is being made by the experiment stations and farmers throughout the entire country to increase the acreage sown to alfalfa. It is evident from past experience that alfalfa culture is more difficult in the eastern part of the United States than in the western.

Greater humidity is evidently the underlying cause of the difficulty, for alfalfa is almost universally successful in a region of small rainfall, but in what way an increased precipitation affects the growth of the plant is not very well understood. It is probable that any one of several conditions arising from large rainfall is injurious to alfalfa, and that in certain cases one of these is responsible for failure, while in other cases other conditions operate.

Experience in the arid and semi-arid region, has shown very clearly that a large volume of soil air is absolutely essential to the normal growth of alfalfa and that a soil, remaining wet to near the point of saturation, is unfit for the crop. Doubtless the chief cause of failure in attempting to raise alfalfa in the east, has been lack of soil air due to wet and heavy soil. The fact that alfalfa is commonly raised on bottom lands in the west, has led to seeding it on such lands in the east, but the conditions are not at all similar, owing to the lighter rainfall and greater porosity of soil in the west. It is essential that land be well drained, which makes it quite likely that upland is preferable to bottom land in the east.

A heavy covering of snow or ice is injurious and is another argument against bottom land. I have seen a strip of dead alfalfa, fifty rods long, where a heavy snow drift had lain throughout the winter, while the remainder of the field was in good condition.

Without attempting to take up a general treatment of alfalfa culture, which has been most ably treated by Professor Stone in Bulletin 121 of the Cornell Station, I wish to call attention to one or two conditions of soil that have, perhaps, not received the attention their importance warrants.

A farmer living on the Platte river bottom in Nebraska, seeded a field on his farm to alfalfa two years in succession. Each year the alfalfa started and grew two or three months, after which it gradually disappeared. A history of the field showed, that it had been broken from wild prairie about fifteen years before, and continually



EFFECT OF NEUTRALIZING AND INOCULATING SOIL FOR ALFALFA

cropped with corn until the time it was seeded to alfalfa. The reason the farmer decided to seed the field to alfalfa was because it had ceased to produce profitable crops of corn. The soil is sandy, but is not uniform throughout the field, and on certain portions the alfalfa grew better than on others. Samples were taken from these different parts of the field and designated as follows:

- Sample 1. Soil where alfalfa all died.
- " 2. Soil where some alfalfa lived.
- " 3. Soil where most of the alfalfa lived.

A chemical analysis of each of these samples was made and the following is a statement of part of it:

	Sample 1	Sample 2	Sample 3
	%	%	%
Insoluble residue	.95.91	95.72	91.55
Potash, (K_2O)	0.136	0.015	0.245
Lime, (CaO)	0.1431	0.2768	0.1557
Phosphoric acid (P_2O_5)	0.035	0.074	0.116
Nitrogen,	0.041	0.224	0.604

The soil represented by sample two was put into a series of pots treated in different ways, and alfalfa grown in these in the greenhouse. The analysis shows this soil to contain rather small quantities of plant food. It was also acid in reaction. The pots of soil were treated as follows:

- Pot 1. Soil as it came from the field.
- " 2. Soil inoculated with culture of bacteria.
- " 3. Soil neutralized.
- " 4. Soil neutralized and inoculated with soil from alfalfa field.
- " 5. Soil neutralized and inoculated with culture.
- " 6. Soil neutralized, inoculated and mixed with barnyard manure.
- " 7. Soil neutralized, inoculated and fertilized with potassium chloride.
- " 8. Soil neutralized, inoculated and fertilized with sodium nitrate.
- " 9. Soil neutralized, inoculated and fertilized with superphosphate.
- " 10. Soil neutralized, inoculated and fertilized with potassium nitrate and phosphate.
- " 11. Soil sterilized.
- " 12. Soil sterilized and inoculated with soil from alfalfa field.
- " 13. Soil sterilized and inoculated with culture.



EFFECT OF FERTILIZERS

An attempt was made to sterilize all the seed before planting, but this was probably not effective.

Photographs were taken of all the pots at various times. On the one hundred and eighth day after planting all plants were harvested and weighed, and the roots were examined.

Three pots produced a notably good growth. These were the ones receiving barnyard manure, complete fertilization and phosphoric acid. They also contained the largest number of nodules on the plant roots. A liberal supply of nitrate was, in this case, not unfavorable to the production of root tubercles.

This emphasizes the need of at least a moderate degree of fertility in alfalfa soil, and particularly of phosphoric acid. The addition of potash and nitrogen did not produce anything like the effect that the phosphate did in spite of the fact that the soil was relatively poorer in the latter constituents. Where alfalfa is seeded for the purpose of improving a depleted soil, a moderate dressing of phosphate is desirable, or else an application of barnyard manure. The fertilizers were added at the following rates per acre, calculated to a depth of twelve inches:

Nitrate of soda.....	125 lbs.
Superphosphate.....	600 lbs.
Potassium chloride.....	400 lbs.

Experience has shown repeatedly, that a dressing of rotted manure applied during the winter is beneficial to alfalfa, and these results would indicate that phosphoric acid would make

an efficient substitute. While alfalfa is itself a fertilizing crop, as far as nitrogen is concerned, it needs a good supply of phosphorus to aid it in accumulating nitrogen. There can be no doubt that failure to secure a permanent stand of alfalfa is, in some cases due to lack of soil fertility, particularly in respect to phosphorus.

Another interesting feature of the experiment was the fact that the soil which was neutralized but not inoculated, produced a better crop than that which was not neutralized but was inoculated. This would indicate that it is more important to remove the conditions unfavorable to the development of these bacteria than to thoroughly inoculate the soil. This soil, in spite of its acidity, harbored some bacteria, as shown by an examination of the roots of the plant from the field, and these increased rapidly when the soil was neutralized. If no alfalfa bacteria had been present the case would have been different, unless the seed had carried the bacteria. It, at least, shows the futility of inoculation unless the soil is in a condition to favor the growth of the bacteria.

In these experiments the culture obtained from the Federal Department of Agriculture gave a somewhat better crop than did inoculation with field soil.

It was quite evident that the pots which were sterilized produced a better growth than the corresponding pots which were not sterilized. The process of sterilization apparently pro-



EFFECT OF INOCULATION ON STERILIZED SOIL

duced a more favorable condition for the growth of alfalfa. The question presents itself, was there present in the original soil some micro-organism detrimental to the growth of the alfalfa bacterium? This experiment throws no light on that subject, but it is deserving of further investigation.

The practical suggestions to be de-

rived from this experiment are the following:

1. The necessity for at least moderately fertile soil where alfalfa is to be sown.
2. The use of phosphate as a fertilizer for alfalfa.
3. The futility of inoculation unless the soil is in a condition to favor the growth of the bacteria.

THE FARM A SCHOOL FOR CITIZENSHIP

By Anna Botsford Comstock

TWENTY-FIVE years ago, at a low estimate, 70 per cent. of our industrial population were farmers, and two-thirds of our legislators, judges, editors and statesmen had been born in farm homes. They received their early training, and imbibed their first ideas of life and its duties on the rugged hillsides or fertile valleys of New England, on the rich plantations of the South, on the rolling lands of the Middle States, or on the prairies of the West. I shall not try to trace for you the careers of any of these great men who were stalwart boys from the farm. I shall only attempt to point out that our character as a nation has been largely influenced through this early training of our great men and citizens.

Let us glance for a moment at the great moral political forces that have been the bulwarks of our republic and have given us the power to remain firm a hundred years under the assaults of evils, and the pressure of dangers that have constantly assailed us.

First, is the principle of freedom and equality, a willingness to grant to every other person, man, woman or child, the privileges we ourselves would enjoy. A sense of equality that levels all class distinctions and permits no man, nor body of men to submit to oppressions from their fellow citizens. This was the key-note of our Declaration of Independence—it is the keystone of our Constitution. Prof. Bryce, in his "American Common-

wealth," says of us today: "The United States are deemed all the world over to be pre-eminently a land of equality."

Second, is the sense of moral responsibility felt by our people toward their Government. In spite of corruption at the polls, the masses of our voters have a sense of the duty of citizenship. Each American-born voter tries to inform himself sufficiently to know why he belongs to his political party, and to keep an eye on the running of the general Government. To do this he must read and think, and above all have a conscience. Mr. Bryce says, "The average knowledge is higher, the habit of reading and thinking is more generally diffused than in any other country. They know the Constitution of their own country, they follow public affairs, they join in local self-government and learn from it how government must be carried on, and in particular how discussion must be conducted in meetings and its results tested in elections."

Third. The third great force has been conservatism in politics, religion and morality. A reverence for old and established institutions and an unwillingness to try rash experiments with new things. Conservatism is the balance wheel that gives stability and steadiness to the running of the National machine. It is more valuable in the people of a republic, than in those of a monarchy; for, where the people are the government, tendencies toward radical changes and revolution would

prove most disastrous. Concerning this Mr. Bryce says of us: "The Constitution has stood and stands so unshaken that were George Washington to return to earth he might be as great and useful a President as he was a century ago." He also says: "The Americans are at bottom a conservative people. They are conservative in their fundamental beliefs, in the structure of their government, in their social and domestic usages. They are like a tree whose pendulous shoots quiver and rustle with the lightest breeze, while its roots enfold the rock with a grasp which storms cannot loosen."

Life on the American farm has fostered these three cardinal principles, of equality, conscientious responsibility and conservatism, which have done so much to make our America what it is today.

To begin with, the American farm is in a very remarkable way a type of a true republic. Each person in the farm-home is of importance because working for the general welfare. There are no idlers, no drones on the well-regulated farm. All exist for the good of each, and each works intelligently for the good of all. The father plans and leads in the out-door work, the boys and hired men assist him and understand why he has so planned. So in the house with the mother and daughters and hired girls. Each person has his or her own respected place in the household and understands that his or her own work is important to the others and therefore feels a responsibility. See the effect of these conditions upon life and character.

1. The father and mother understand the value and the method of each other's work, and are therefore true companions, and each gives the other sympathy that is intelligent in even the least important item of their duties. I know of no other condition of American society that promotes and secures the ideal marriage as does farm life. The average city wife bids good-bye to her husband at the breakfast table and does not see him again until evening. She cannot

know and therefore often gets to care very little about the burdens and vexations of his business. She is an alien from her husband during the greater part of their married life. Not so the country wife; she is called upon to sympathize and help at any and every hour, and with every experience—from tinkering a broken whiffletree, to scraping the money together to pay off the debts. We hear of much drudging done by the farmers' wives, but with it comes a compensating blessing; for through it they are co-workers with their husbands, and their married life is one of perfect understanding of their husbands' daily lives and employments. Divorce rarely occurs in country districts, not one in fifty families suffering from it, and then only upon extreme provocation. The reason is, that on our farms husband and wife are compelled to live so closely, the objects of their thoughts and interests are so identical that those disagreements which in nine cases out of ten disturb early married life, like the friction of a new, imperfect machine, are ground down to smoothness through constant, intimate companionship, until each gains a better understanding of and patience with the other. Sacredness of the marriage is the earliest lesson the farm child is taught—for he breathes it in with the first breath that fills his lungs.

2. Another phase of the farm republic is the training given the children. As soon as the child is old enough to do anything it finds little duties awaiting it that help the family. I, myself, believe that of all the chores, those which relate to the care of stock are of the most importance in training the child to a real sense of responsibility. I shall never forget of the misery I once experienced as a child when I went to school and forgot to feed my chickens. Not that I feared a scolding. Any scolding, however, would have been a luxury compared with my sorrow when I thought

of my dear little fluffy chicks suffering from hunger through my carelessness I was taught thereby that if I did not perform my duties the innocent were victims and any punishment inflicted on me gave them no relief.

A sense of responsibility is indispensable to good citizenship, and I doubt not that many of our most wise and thoughtful statesmen can trace back their power to think and to do for others to the lessons of care-taking which they were taught on the farm.

Then, too, the farm child learns early to reason, and is a companion of its father and mother; all their work goes on under its eyes; it knows if the father plows it is because there is to be a sowing and a reaping. As soon as it can think at all, it notices the important details of family life; as soon as it can work it takes an important, helpful part of the family duties, and soon becomes fitted to take its place in the family councils, from which the farm child is rarely shut out.

3. The third important characteristic of the little farm republic is that it is truly democratic. As the work of the man and the woman are of equal value on the farm, so is it also with the hired help. They work beside the master and mistress and have their own respected places in the house. They are treated as men and women and not as mere human machines run for the convenience of their employers. There are no class-distinctions fostered on the farm; all labor is esteemed honorable if it is done well and honestly, and, therefore, honor is always given to the efficient laborei, whether he be the owner of the land or a worker for wages. It is a most valuable lesson to teach the child who is to one day help make laws for a republic—the lesson that every person he meets is a human being with rights equal to his own, worthy of all the regard that character demands, no matter what the worldly position may be. It is a good lesson in practical Christianity as well as citizenship.

Personally, I consider this especial lesson of the most practical benefit to me in after life of any that I received as a child. I remember well the hired men and hired girls seemed to my childish mind very exalted individuals, so thoroughly was I taught to respect and obey them. I used to dream of a time in the future when, if I worked well and knew enough, I, too, should be somebody's hired girl. The consequence of this training was that when I grew up and went out in the world I never found any one who was born and lived for my special convenience; but I did find a world full of very picasante people who were ever ready to do me a kindness. And in many years' experience as a housekeeper, in a society far more complex than the dear farm life and where good help is said to be scarce, I have never employed a servant who was not as good, and sometimes I have thought, some better than I was. At least they have all been worthy of the friendship which I naturally and heartily gave them, and I have for the most part been served skillfully, and always faithfully and respectfully. The advice I would give any parent is: if you would have your child have an easy time in life, teach him he is no one's superior and yet no one's inferior so long as he behaves himself properly.

The breaking down of this principle of equality has resulted in strikes and riots, crime and bloodshed in our great cities. In great factories, mills and industrial establishments there have almost inevitably arisen class-distinctions. This has come about easily because of the hordes of immigrants that have poured into our cities, and who are unfitted by previous experience to understand the difference between freedom and license. How different is the history of the immigrant who seeks our rural districts from that of his brother who remains in the city. Those who came to the farm, through perfect freedom of association with their employers, soon acquire ideas of patriotism and citizenship and forget to

a great extent the alien and antagonistic ideas they were born and bred to in their own country. I know a man in a county of our state who, one Presidential election, refused \$50 for his vote, and yet twenty years ago he came from a land where even the Government officials take a fee of ten cents gratefully.

It is the result of general observation today that our immigrants who go to labor on farms, soon own land of their own and become law-abiding citizens and bring up their children to the true American idea.

4. The influence of the farm is all for peace. In fact, through all history, from Bible times down, those who have owned and tilled the land have desired peace—for perfectly obvious reasons. The farmer has nothing to gain by war, as has the speculator, the politician and often the manufacturer. Many of you will remember during the last war how the farmers of the North and West were most reluctant to admit the necessity of war; but when it was once declared there swarmed from all the country districts whole armies of determined, dogged fighters, who fought all the harder because their hearts were homesick for the peaceful comfort of their country homes.

5. And very important has been the conservative influence of the farm home on our national development. Conservatism in politics, and morality, respect for and belief in the wisdom of our ancestors is as much a part of the farm home as are its walls. It is preserved because the farm is isolated from those centres of population where waves of excitement are continually sweeping over and tearing down ancient landmarks and customs. The teaching of the farm home is never to exchange what is old and tried for something new and untried, unless the necessity is very pressing. Conservatism is not always a desirable quality by any means, especially when applied to methods of agriculture—but from a political standpoint, this tendency in our coun-

try districts has served our country well, during the last quarter of a century, for it has helped to counteract the influence of the masses in our cities which in their discontent have been trying to pull down existing institutions—more to see them tumble than for any definite plan they have for remodelling them.

6. The last, but not least, influence for good in the country home, is the habit of frugal comfort that exists there. The members of the family are well clothed, fed well (better than any other class of human beings in the world, I believe) and comfortably housed, and yet extravagance is always frowned upon. If the boy from the farm remembers only this one of his many lessons he will do good in our legislative halls. I fear there are fewer boys from the farm in our National Legislature than there used to be, otherwise we never should have witnessed the reckless abuse of public moneys which has characterized the last decade.

7. The sentiment of the farm home is for truth and honesty and fair dealing. In the country, people know each other so well that vice and dishonesty cannot long wear a cloak, and vice and dishonesty never thrive when stripped, and standing in the broad light of day.

Fifty years ago farm mortgages were rare in America—now they are almost the rule.

What is the result? The capitalists of our land are gaining sure possession of great tracts of our farming country. I have no complaint against capitalists. Capital follows economic laws as surely as water follows the law that makes it seek its own level. Capitalists are not responsible or to blame for economic laws. But what does this condition of things point to? Inevitably to the owning of our farm lands by a few and the renting of them to those who follow agriculture for a living. To the thoughtful American citizen this is a dark outlook. Would the farm life of America ever have developed such forces for

morality and good government if the farmer had not owned his land? Look at the tenant farmers of England, Ireland, France, Germany and Italy for your answer.

If the American farmer is to preserve his honorable position and ancient prestige something must be done to put agriculture on at least an equal footing financially with other occupations. The farmer must take matters in his own hands and think out the problem for himself, or put men in power who are able to think it out for

him. As yet he has great political influence. The time has come when every power must be exerted, every nerve strained to preserve to America one of her most honorable, ancient, and important institutions—the American farm. And while we are fighting for a privilege to till our own land at living rates, we may be helped and encouraged by the faith that we are not only fighting for our rights, but for the best interests of our great Republic—our free, beloved America.

CERTIFIED MILK

By Amos L. Kenyon

THE term "certified milk" is of comparatively recent origin and implies that such milk has been produced under the inspection of a milk commission or some other body of persons or a person whose rules and requirements embody the best known methods of cleanliness for the production of milk containing less than a stated number of bacteria per cubic centimeter. This number varies with different commissions or societies from ten thousand to fifty thousand.

Certified milk must be produced from a herd which has successfully passed the tuberculin test and is otherwise in perfect health, so far as can be detected by an experienced veterinarian employed by the commission or other parties certifying the milk.

The dairy for the production of such milk should be located in a place having natural advantages such as elevation and good drainage. The whole dairy should be supplied with an abundance of water absolutely free from contamination or any source of filth, and no stagnant pools should be allowed on the premises which should be kept neat, clean and free from all rubbish.

No horse stables, hog pens, or manure pits should be near the stables as they are a source of filth and a breeding place for flies which are a great

source of annoyance to the cattle as well as a means of contamination of the product.

It is not necessary to have expensive buildings and apparatus, but they should be so constructed that they may be kept in perfect condition and easily cleaned. If erected of concrete they may be easily washed and scrubbed, but if of wood one must resort to the use of white wash or other purifiers to a certain extent.

The stables should have abundant light and perfect ventilation as these are two most important factors for the health of the herd and purity of the air in the stable. They should have tight floors, open gutters, and all sharp corners should be avoided. Great care should be taken that the floors have sufficient pitch so that no water will stand on them. All should be arranged with a view to comfort of the cattle and ease of cleaning. No storage loft should be above unless really necessary, in which case it should have an absolutely tight floor.

All feed should be kept in rooms separate from the stables. The cattle should be examined from two to four times each year by a skilled veterinarian and all animals suspected of tuberculosis should receive the tuberculin test. Any suspected of other diseases or not in perfect health should be removed from the herd and

their milk rejected. No animals should be added to the herd until examined and tuberculin tested.

Nothing but clean, sweet, wholesome food should be supplied and this never shortly before or during milking time. No strongly flavored food like turnips, onions or garlic should be fed and if ensilage is fed, it should be in medium quantity.

For bedding shavings are considered most excellent, but whatever used should be clean and free from dust.

The stables should be washed thoroughly each day and all litter removed at least twice a day or oftener if the cattle remain in the stable most of the time. Sweeping must be done previous to grooming the cows which should be finished at least fifteen or twenty minutes before milking time.

Before each milking the cows should be thoroughly groomed, the body should be wet well up towards the shoulders, the udder and tail washed and thoroughly dried. All hair of any considerable length it clipped from the udder and surrounding parts will materially aid in keeping the cattle clean and will prevent contamination of the milk to a considerable extent. All cows must be fastened so that they cannot lie down after being cleaned until they are milked.

After the cows have been prepared for milking the employees, who should be of clean habits and in perfect health go to rooms where they may thoroughly clean themselves, especially their hands and nails. Each milker attires himself in a clean, white suit and cap, which have been sterilized. Having thus prepared themselves for the milking, they should pass by a door which is set apart for the delivery of the sanitary pails to the milkers. As they pass directly to the stable they proceed at once to draw the milk after first slightly dampening the udder with a wet towel, care being taken not to get the udder so wet that water will drip into the pail while milking.

The milker should have his cap well over his forehead and his hair

brushed up under it in front so that no hairs or dandruff can fall into the pail. He should touch as few things as possible while milking and under no considerations rest his head against the cow.

The first few streams from each teat should be thrown away, but preferably not in the gutter. The milker must not allow his hands to become wet with the milk. Milking with wet hands is a most filthy habit.

After the milk is drawn it should be taken immediately to the weighing and straining room which should be separated from the stable by a passageway at least four feet long and having swinging doors at either end. The floor of this room should be of concrete or some non-absorbent material and the surface covered with flowing water which will readily drain away and remove all milk spilled. In this room there should be provided a place for the milkers to wash their hands after milking each cow.

The milk should be strained or emptied into a twenty quart can which, as soon as filled, should be sent to the dairy on a cable carrier, a contrivance now found at all modern dairies.

The dairy building should be at least one hundred feet distant from any other building and the milk receiving room should be of such elevation that the milk may have a continuous downward flow from the receiving tank to the bottles. The dairy building should be constructed of non-absorbent material if possible and all floors well pitched so as to drain towards the traps. The building should be well lighted and the ventilation system made dust proof.

The dairy ought to consist of a wash-room, bottling room, milk receiving room, butter room, if butter is to be made, a cold storage room and a hall, which opens on the delivery porch, should be between the bottling and cold storage room. There should also be a place provided for the boilers, a cold storage plant if one is used, a laundry for washing and sterilizing

the suits and a convenient bath and dressing room for the employees to use.

The wash room should be large, well lighted and equipped, with the best of apparatus for cleaning all utensils and bottles.

A high pressure sterilizer should be so located that one door opens into the wash room and the other into the bottling room. All utensils and bottles used in connection with the milk should be thoroughly washed, put into this, sterilized and subjected to 240 F. degrees of heat before taken out into the bottling room to be used. The bottling room should be so situated that it is not necessary to open any doors until all bottles are filled and capped. All apparatus should be simple, light and easy to clean. The bottling room should be thoroughly washed each day with water as hot as can be run through a hose from a steam and water mixing tee. No bottle, boxes or cases should be allowed in the room and no persons or utensils other than those needed to handle the milk, as they may be a source of contamination.

The milk should come from the receiving room through a small hole in

the wall just large enough to admit a conducting tube which conducts the milk from an absorbent cotton strainer to the supply tank.

The cooler should be of ample capacity to cool the milk rapidly to 38 or 40 F. degrees.

The bottles may be placed in a submerging table if so desired, and the discharge from the cooler run through the table to keep the bottles cool while they are being filled and capped. Bottles should be capped with sterilized discs and may be sealed or covered with a paper or tinfoil cap bearing the name of the producer and the date bottled.

As soon as bottled and capped the milk should be placed in cold storage unless it is immediately delivered, in which case it should be surrounded with cracked ice in the shipping boxes.

Samples taken at random from the supply of bottled milk, should be sent to the milk commission at frequent intervals in order that they may be kept informed as to the character of the milk. Upon their report to the physicians in the section in which the milk is sold, depends, more or less, the success with which it meets on the market.

VACANT LOTS GARDENING

By A. R. Mann

THE student of sociology is ever ready to welcome a movement which provides self-help for those who are or may be public dependents. Every great city has thousands upon thousands of idle people, especially old men and old women, partially disabled or having some physical or mental deficiency—too weak, too slow, too thoughtless, too inefficient in some way or other, to find a place in the ordinary pursuits of life. These men and women must live, and, if not by their own labor, then by charity or stealth. Either of the latter is a drain on the public.

To provide such disabled and decrepit persons with self-help is the

object of the "Vacant Lots Gardening" movement, instituted a few years ago. Perhaps in no other place has this movement met with such success as in Philadelphia. Here, as in every great city, are hundreds or even thousands of acres of idle land, at the very doors of these people. Being idle, it is used as a dumping ground for refuse and filth, and soon becomes unsightly. If allowed to grow to weeds, it is a menace to the lawns and gardens of the neighborhood. It is, therefore, greatly to the advantage of the community to have these lands used. And this is what the "Vacant Lots Cultivation Association" attempts to do.

The Association pays nothing for

the ground. Many of the owners of such lots are glad to have them cared for until they are ready to build or otherwise dispose of them. They are also glad to afford such help at no cost to themselves. The land is secured on the understanding that it will be surrendered to the owners on demand. This may seem somewhat risky, but very seldom has the Association had to give up its land during the gardening season. In like manner, the Association pays almost nothing for fertilizers. The street cleaning contractors very willingly dump their sweepings in these lots. These sweepings, though not the best, have some value as fertilizers. The seeds, costing about \$1.50 a garden, are provided by the Association. In addition, the Association prepares the ground roughly, allots it, manages the gardeners, sells or lends them tools, gives advice and oversight, and takes lots away if neglected. Nine years ago, when the work was begun in Philadelphia, it was necessary to take lots from one person in five for want of care; today, from one in more than two hundred. Those helped have found that it pays to work.

Each one, as a rule, is given a quarter-acre; a few, who show ability, have more. In 1903 there were 295 acres of land under cultivation, on which were employed 800 families, representing over 4,000 persons; since that time this number has steadily increased. What a burden removed from the shoulders of the city by a few public-spirited men and women! Each one grows two to five crops a year, depending on the nature of the crops, and intensive farming is practiced in its most intense form. Every square foot is utilized, and as soon as one crop is matured it is removed to make room for another. The average quarter-acre yields about \$50 a year; the highest yield is about \$200 a year. The gardeners may dispose of their products as they wish. Many take them home to fill the hungry mouths, and to brighten the empty table that for years

has not held a fresh vegetable. Others peddle their products and realize what is to them a handsome sum. With this cash comes a feeling of independence and inspiration to greater effort.

The effect on the gardeners, naturally, is very marked. They come from all sources but the rich and lazy. They pick themselves out, and the Association asks no references. The only requirement is that they work the garden properly, and be tolerable as a neighbor to other gardeners, as the dividing line between gardens is only a path. They come from the worn-out and disabled classes; the half-sick; now and then a drunkard; some, who work ten hours a day in shop or store, grow vegetables overtime to get on faster; some women, who for various reasons are needy, give part of their time to a garden; the children in the families. The effect on the children would make a story in itself. At present we are concerned more with the effect on the aged gardeners, for more than sixty per cent. of the whole number are over fifty years of age. They learn to get a neat sum of money and a fair proportion of their living from a little ground. The change from the crowded and congested districts, from which so many of the beneficiaries come, to God's out-of-doors, is almost a change from death to life. The cheer that comes of enjoying new resources, especially those procured by one's own labor and planning, develops hope in some who were almost in despair. From contact with other gardeners they become neighborly, and learn to respect the rights of others. Trespass is rare. Pride in their gardens, sympathy for others, self-respect from self-help are the inevitable results.

On a visit to the gardens in Philadelphia recently, perhaps the most impressive example of the benefits of the work, was that of an old, one-time wealthy newspaper man, broken in health and resources, and paralytic. Five years before he had been wheeled out to his quarter-acre lot in a chair, to do what he could,

Today he is on his feet, the renter of five acres of land at one end of the city, and the employer of five men. He is not only making a comfortable living, but is laying something aside. His bright, happy face showed his appreciation of what had been done for him. And with such a garden, which would have done justice to a life-time farmer, he could not be other than happy. Instead of pushing a wheel-chair along the rows, from which to hoe his crops, he is now young again and is pushing a wheel-hoe. The old chair is a relic. He has become independent.

There can be no better paying charity work than teaching the poor self-help. The idle must be supported, and the number should be reduced as much as possible. Self-help makes men independent, and this adds to the general welfare. Let us hope that the work of the "Vacant Lots Cultivation Association" may be rapidly extended to other cities, that those who are sitting in the region and shadow of death may see a great light, and that many who are now cast out may yet earn their bread by the labor of their hands.

THE GRADUATE SCHOOL OF AGRICULTURE

By *J. N. Chakravarty*

THE Graduate School of Agriculture held a very successful session last July under the auspices of the Association of American Agricultural Colleges and Experiment Stations at the University of Illinois.

The purpose of this school, according to its program is "to give advanced instruction in the science of agriculture, with special reference to the methods of investigating agricultural problems and teaching agricultural subjects." The membership of the school is limited to persons engaged in actual investigations and to graduate students. The school owes its origin to Professor Hunt, then dean of the College of Agriculture of Ohio State University. He conceived the idea that it would be a great help to all agricultural teachers and investigators, if arrangements could be made for periodical meetings, "where leading teachers and investigators of the Agricultural Colleges and Experiment Stations and of the Department of Agriculture, should present in some regular way, summaries of the recent progress of agricultural subjects and thus afford a somewhat extended opportunity for the discussion of live topics drawn from the rapidly advancing science of agriculture." This plan met with the cordial support of Dr. W.

O. Thompson, the president of the Ohio State University, who submitted it to the Association of American Agricultural Colleges and Experiment Stations. In 1901, the Association proposed to make it a co-operative enterprise under its control, if the first session was successful. The Ohio State University made generous provisions for financial support for its first session, which was held there in July, 1902. The secretary of agriculture, Hon. James Wilson, also gave his cordial support to the movement. The Director of the Office of Experiment Stations consented to act as dean and other officers of the Department became members of its faculty. The first session with Dr. True as the dean, and Professor Hunt as the registrar, was a great success, the students representing 28 states and territories, besides Canada and Argentina. Besides the regular lectures, frequent discussions were held on various subjects of agricultural interest, such as the "History of the Agricultural Education and Research in the United States," "What Constitutes the Science of Agriculture," etc. The success of the first session encouraged the Association to make the school a permanent institution and the management was committed to the committee on graduate

study of the Association, of which Director Bailey is the chairman.

At the invitation of the trustees and the president of the University of Illinois, the second session was held there this year opening on the 2nd of July and continuing for four weeks. As in the first, the director of the office of Experiment Stations acted as the dean, with Dean Davenport of the University of Illinois as the registrar. The faculty was composed of experts of the United States Department of Agriculture and professors from the different universities and colleges in some twenty states. It included such men as E. Davenport, T. J. Burrill, C. G. Hopkins, E. D. Voorhees, W. J. Spillman, H. J. Webber, W. H. Jordan, J. Craig and others of equal eminence. As it was not possible to offer instruction in all the branches of agriculture, the courses offered were Agronomy, Zootechny, Horticulture, Plant and Animal Breeding. The mornings were devoted to lectures and discussions, each lasting an hour and a half. The afternoons were spent in seminary work, where discussions were held on the subject of the lectures. The authorities did not overlook the importance of making the instruction both theoretical and practical, and arrangements were made from time to time for lectures by persons engaged in practical business.

It must be remembered, however, that the formal lectures and discussions were but a part of the program of the school. Not the least important were the informal meetings, the discussions, and the social gatherings, held from time to time in the evenings. These afforded a great opportunity for the students and the members of the faculty to come into close contact and to exchange ideas. One remarkable feature of the school, both in these informal gatherings and in the class room, was that hardly any distinction could be drawn between the students and the teachers. The members of the faculty were as eager, if not more so, to have free discussions

as were the students. It shows very clearly, indeed, that the men who have studied most and are masters of their subjects, are the very men who are the most willing to have new ideas and are always ready to listen to other's views. The subjects that were discussed in these evening conferences, which were largely attended, were most interesting, some of these being, "Is Agriculture a Science?" "Extension Work by the Experiment Stations," "Method of Teaching Agriculture." On Saturdays formal exercises were held in which prominent men delivered addresses on various agricultural subjects. The most prominent among these was the address of Director Bailey, in which he discussed the System of Agricultural Education in the Country.

The success of this session is shown by the increased number of students, the total enrollment being 131. Thirty-four states and territories, in addition to two foreign countries, Hungary and India, were represented. It may be noted that next to Illinois, the strongest delegation was from Cornell, which furnished eight members. The success which attended this session of the school indicates the progress this country has made in agricultural education and investigation. The enthusiasm shown in the school by the members demonstrates beyond doubt that there is ample room for such an institution and is a sufficient justification for its further continuance. It is a matter of satisfaction, therefore, that it has been decided to make it a permanent institution and to hold its third session in 1908.

In conclusion, I again wish to repeat that the Graduate School of Agriculture is one of the most remarkable institutions in this country and that no one who was present at this session can fail to recognize its great importance and the influence it is bound to exert in the cause of agricultural education, not only on this country, but on the whole world, as it is more and more assuming a cosmopolitan character.

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OCTOBER, 1906

University Spirit WE desire to urge all Cornell students to be

"Cornellians" in the truest and broadest sense.

Cornell is a University—an aggregation of colleges—not a college. "Cornell spirit" is a University spirit. It is bigger and broader and more generous than the college spirit. The true Cornellian, therefore, appreciates the good that is in all the colleges of the University. He endeavors to become familiar with the methods and the work of the other colleges and, in so doing, disproves the adage that "familiarity breeds contempt." To become familiar with the work and the aims of the students in other colleges is to breed respect for them and for their calling. The opportunity to thus associate with men in other professions is a distinct advantage of university life over college life. The engineer who understands the majesty of law as the law student understands it, who sees the expression of form and color as the architect sees it, who feels the harmony of music as the musician feels it, who appreciates the beauty and grandeur of nature as the farmer appreciates it, will not think of students of law as "connivers" and "petafoggers," nor architects as mere drafters at "so much per," nor musicians as

"pipers" and "fiddlers," nor farmers as "hay seeds" and "buck-wheaters." So, too, in their turn, the lawyer, the architect, the musician, and the agriculturalist, when they are broad enough to see things in their true light, through a clear university atmosphere, will know the engineer not as begrimed and oily doing a menial work, but will know him working in perfect accord with, and adapted to his work and surroundings which are necessary to the successful designing and building of the world's great engineering enterprises.

While we are here as students together in a great university, we should rub shoulders with our fellows in all the colleges. The rubbing will do us good. The sharp corners and rough edges of envy, of jealousy, or of contempt will polish off and we will emerge university students in the best sense. Therefore let us all be university Cornellians, not college Cornellians.

The university spirit is a quality of mind and heart. It is an individual characteristic. It is primarily based on the feeling of personal ownership. This feeling develops with each individual as he or she enters into university life and becomes a part of it—does something for it. It therefore requires a personal effort and perhaps individual sacrifice. We love best the things which we help to create. This is not selfishness. It is human nature, and human nature is essentially and primarily good. We urge upon you to "do something". Do something for your class, for your department, for your college, for your university; your class, your department, your college, your university. You will then know what the true

"Cornell spirit" is because you will have *felt it*. It will find spontaneous expression in the Cornell yell, in a feeling of joy and gladness with everything good that pertains to Cornell and a feeling of regret and sadness when defeat or misfortunes befall her.

Your duty to yourself and to Cornell requires that you enter heartily into university life, which is a broad life, an intellectual life, a studious life, an active athletic life, a helpful life, a moral life, a fascinating social life. The true university spirit finds expression in the harmonious blending and development of all these various activities of mind, heart, and body. To attain the university spirit means to be a good student, but not a recluse or book worm; to be an athlete and support athletics, but not to the point of dissipation; to be a man among men especially in whatever uplifts, develops, and refines, but not to forget that to obtain a college education is more than a mere "social event."

Thus will each one of us who is privileged to enjoy the rare advantages of this great and beautiful Cornell University, this new and expanding College of Agriculture, realize and appreciate sincerely and profoundly the unfolding opportunities which are open to us and the buoyant enthusiasm which comes freely through association with men of high ideals engaged in similar work.

James E. Rice.

**Our College
Still Growing**

FEW of us who are in active participation in the work of the college realize how rapidly it is growing. It is not only growing in numbers and equipment, but it is grow-

ing in purposes and ideals. During the past four years much has been done, more than we are apt to casually think of, but the end has not yet come and it is hard with the present prospects of development and growth to tell when the end will be reached. The eyes of the agricultural colleges of the country are turned on Cornell as it bursts from its chrysalis of years and emerges with an equipment and development which will be equalled by but few agricultural colleges, if any. The teaching work of the college with its new teachers, new buildings, and new equipment has expanded enormously, as a glance at the schedule of courses for this year will show. The extension work of the college is being enlarged and rejuvenated. The winter courses are being strengthened and perfected. And, last of all, the investigational work is to be greatly aided and improved by the money placed at the disposal of the college by the Federal government. Much interest has been manifested in the development of fundamental research which this money has made possible. Director Bailey, when asked concerning this, said:

"The federal funds are to be used exclusively for research in underlying questions pertaining to agriculture. These funds are derived from the Hatch Act of 1887 and the Adams Act of 1906. It is the intention to secure the services of a very few high-class men, whose entire energies will be devoted to these fundamental and continuing investigations. These persons will not teach under-graduates, and will not be called on to engage in other and irrelevant work. This arrangement will in no way lessen the amount of experimental work of the regular departments of the college.

These departments will pursue their accustomed work on the state extension funds, publishing bulletins as rapidly as their experiments and tests mature."

The Traveling Summer School of Agriculture

THE Traveling Summer School of Agriculture which was scheduled for the past summer failed for lack of students. The faculty regulation authorizing the course, required that at least ten students must go on the trip. Failure to comply with the requirements on the part of several students who had been expected to go caused the project to be abandoned for that year.

Several have signified a desire that such a trip should be taken next summer but it is practically certain that any initiative to that end must be made by the student body. It is highly probable that the faculty will take no further action in the matter unless there is a strong desire expressed for it on the part of the students.

The trip as planned was to be a tour of many of the principal agricultural

regions of the United States under the direction and instruction of a member of the college faculty. The party was to go as far west as Colorado, traveling west through the more northern states and returning through the Gulf states and up the Atlantic coast. The National and State governments as well as many private individuals had offered to extend unusual courtesies to the party and in all parts of the country much interest was manifested in the project. It was expected that the school would travel in a private car specially fitted for this trip. Meals were to be served on the car so as to render the party independent of towns and hotels. Each student was required to deposit in the University treasury \$400—to cover the expenses of the trip, a detailed itinerary of which was published in the May issue of *The Cornell Countryman*.

If, as seems possible, there is a sufficient number interested in the trip to make it practicable next summer, the effort toward securing the course should be made as soon as possible in order that the arrangements may be completed early in the college year.

GENERAL AGRICULTURAL NEWS

There was a considerable attendance from Cornell at the Graduate School of Agriculture held at the University of Illinois at Champaign. Dean Bailey and Professors Craig and Lyon represented Cornell among those who lectured there. Among those who attended the sessions were: Professors Stone and Warren, Messrs. Wilson, Hosford, Harper, Paul, Chakravarty, Ghosh and Sil.

* * *

August 21st to 28th was old home

week at Ithaca. On Saturday the 25th a large Grange picnic was held at Renwick Park. The Grangers were addressed by Dean Bailey in the afternoon. On the 28th the College of Agriculture was well represented in the parade which then took place. The Department of Dairy Industry had a large float as did also the Poultry department. Various animals from the Department of Animal Husbandry were shown in the parade.

* * *

The American Peony Society has accepted the invitation of President Schurman and Dean Bailey to hold the



DAIRY FLOAT IN PARADE, OLD HOME WEEK, ITHACA

next meeting of the society at Cornell University in June 1907. This year the Annual Meeting and Exhibition was held in Boston. In point of numbers the exhibition was larger than any held previously by the society. The quality of the flowers was generally excellent despite the somewhat unfavorable season. The president of the society in his address called attention to the large collection planted by Cornell University through which it is hoped to so revise the nomenclature that less confusion will result than is now the case.

J. Eliot Coit who is in charge, through the Horticultural Department, of the society's collection of peonies at Cornell reported that to date there were 1,933 different lots of peony plants of between 1,200 and 1,500 varieties. The plants cover nearly 2½ acres. These were originally planted so near the new athletic field that on account of its extension the Horticultural Department was com-

elled to move the plants further back on the farm. Mr. Coit said that in connection with the investigations of peonies two things were especially needed, first, a complete list of all names ever used in connection with peonies, second, an accurate description of all known varieties. This should be made in such a way that there would be one description such that growers could easily identify varieties from it and another description for the use of scientists. This task is a herculean one and will take much time but when completed should be of incalculable benefit to growers.

* * *

A bill is now pending before the Georgia legislature to provide for the establishment of an immigration bureau to encourage the dissemination of knowledge concerning Georgia among the immigrants who are flocking to this country. It is urged that the people of that state feel that the

negro labor can no longer be depended upon.

* * *

At the exhibition of fruits of the Georgia State Horticultural Society at Macon August 7th and 8th, during the annual meeting one of the most exploited features was a lot of Elberta peaches which had been in cold storage for twenty days and which are stated to have been in excellent condition at the end of that time.

* * *

At the 12th annual convention of the Apple Shippers Association held at Niagara Falls, N. Y., August 1st, a paper was read from Professor Craig who as secretary of the American Pomological Society urged the adoption of a law similar to that in force in Canada regarding the inspection of export fruit. In response to this pa-

per the following resolution was adopted:

"RESOLVED, That a committee of three be appointed to act with a similar committee of the American Pomological Society and the American Apple Growers' Congress for the purpose of preparing standard descriptive definitions which shall cover the grades of apples now well known to the American and European trade." A resolution favoring optional government inspection of apples for export was also adopted.

* * *

The Iowa State College has been presented with a challenge trophy by Mr. Glynne Williams, a resident of Argentina. The trophy represents the figure of a Short Horn bull which is raised upon a suitably inscribed pedestal. This trophy will be competed for by the senior students in stock judging.

CORNELL NEWS

CAMPUS NOTES

THE new buildings of the College of Agriculture are now nearing completion. The Dairy Building which, it had been expected would be accepted by Sept. 1st, will not be finished for occupancy until Oct. 1st. All dairy courses during the university year will be conducted in the new building. The Main Building is not expected to be occupied this year. The Agronomy Building will probably be completed during the winter so that the course in "Farm Machinery" can be given there during the Spring term. The other courses in Agronomy will not be given in the new building during 1906-07.

The Dairy Building now completed is one of the finest in existence at any Agricultural College. Members of the faculties of most of the colleges of agriculture have signified their intention to inspect the new Dairy

Building as soon as completed. In addition to most of the old equipment which has been put in repair the new building will have much new apparatus which will be installed during the year. It will include 3 churns, 3 butter workers, 2 coolers, 3 new sterilizing chests, a pasturizer, a Victor skinned milk pasturizer, Argos and Wizard milk testers, 3 scales, a 30 h. p. boiler and much other equipment for the laboratories such as microscopes, etc. The special furniture for the class rooms, offices and cloak rooms is being made by the H. J. Bool Co. and the metal work by Treman, King & Co. The building has locker rooms equipped with shower baths. There are especially large and commodious dressing rooms for women students.

The Agronomy Department will have its headquarters in Morrill Hall as formerly. The former agronomy laboratory, Room No. 20, is now to be used as a library for the depart-

ment while the old lecture room, Room No. 19, which has been used for so many years as the lecture room of the professors of agriculture and agronomy will be the laboratory. The communicating room, Room No. 12, will serve in several courses as the Agronomy lecture room.

The Horticultural Department has been making improvements on the Forcing Houses this summer. The laboratories have been thoroughly overhauled, repaired and repainted. Among the new equipment of this department is a new spraying outfit. The large mushroom house is being refitted for the use of the Nature Study work. The roof having been removed and glass substituted it will be used as a greenhouse.

* * *

One of the new enterprises of the college to which especial attention will be drawn during the next few weeks is the Model Schoolhouse which is now being built and which will be under the direction of the Extension Department of the College of Agriculture. The schoolhouse is being built on Garden Avenue back of the Andrew D. White residence and almost under the great shadow of the new Agronomy building. The schoolhouse is to be built of wood, and will be of moderate cost. It will be such a one as any school district in the state might build. The main feature of novelty which will be in this schoolhouse is, that, besides the usual room for the study of books, it will have adjoining it a large room which will be used as a laboratory. There will be a big bay window for plants; as well as tables and cases where the pupils may keep and study stones, insects, plants and all other objects from the out-of-doors in which children should be interested. The building is to be finished during the first week in October. During the coming year, Miss Hitchcock, who has formerly taught the children of the campus in Barnes Hall, will occupy the schoolhouse, teaching her classes there.

During the afternoon it will be used as a laboratory by the students. Children will be taught there in Nature Study and the students thus able to gain experience in instruction at first hand. The schoolhouse will be widely advertised on bulletins and leaflets, and an effort made to secure its duplication at many places in the state.

During October 3rd, 4th and 5th the annual meeting of the New York State Association of School Commissioners and Superintendents will be held at Cornell University. Particular interest is attached to this meeting because of the new Model Schoolhouse which is being built and which is then expected to be in actual operation.

* * *

Professor Pearson was elected President of the "National Association of Dairy Instructors and Investigators" which was organized at Champaign, Illinois, during the session of the Graduate School of Agriculture.

* * *

The College of Agriculture made an important exhibit at the New York State Fair at Syracuse, Sept. 10-15th. A large space was reserved for the college exhibit which occupied one end of the Horticultural Building. The object of the exhibit was more to show educational methods than agricultural products. For example, the beets and other roots were not shown to illustrate good agriculture as much as to show laboratory material with which the students work.

The Agronomy Department made an exhibit of teaching methods exhibiting laboratory material, practium papers, etc., together with the apparatus for testing roots for the various factors of size, shape, per cent. water and per cent. sugar.

The Dairy exhibit was in charge of Prof. Stocking and Mr. Ross. It showed various methods of testing milk for fat and impurities as well as photographs of the work of the department. The poultry exhibit, in charge of Mr. Lowry showed many pictures of the Poultry Show and

of the students at work. The Department of Horticulture had an educational exhibit in charge of Mr. Wilson which partially showed the large scope of the department. Prof. Whetzel showed types of plant diseases with specimens. Other departments of the college were also represented. Possibly the most useful and unusual feature of the exhibit was the temporary branch office of the college where information could be gotten concerning the work of the students and of the college. Some member of the college faculty to whom free access could be had was always present. Space in the college exhibit was devoted to *The Cornell Countryman*. Here, as an integral part of the educational work of the college, were shown the later issues of the paper. A member of the *Countryman* Board was present to explain purposes and methods.

* * *

Certificates of Proficiency in Dairy Industry have been granted during 1906 to: H. E. Austin, A. M. Becker, C. H. Bouton, W. H. D. Caldwell, B. D. Foord, R. C. H. Fowler, W. L. Markham, H. S. Merry, H. J. Northrop, F. H. Peabody, E. A. Raymond, I. W. Russell, Archie Scott, James Spencer, James A. Tompson, M. V. Wade, Maskell Ware.

* * *

A Winter Course in Home Economics is now an established department among the courses given by the College of Agriculture. One was presented in the winter of 1906, the success of which exceeded the expectations of all interested. Lectures were given by women representing departments of Home Economics in different schools and universities of the country upon subjects pertaining to foods, sanitation, household art, household management, farm home industries, and women's social and economic relations to the world. The average daily attendance upon lectures was about eighty

while those regularly registered numbered forty-three.

In the winter of 1906-7 a similar course of lectures will be presented. The tuition is free to women of the state of New York and the course planned with special reference to the improvement of farm homes, where there is a varied problem constantly presented for the farmer's wife and daughter.

There will be cooking demonstrations and lectures upon the nutritive value of foods, with special instruction in diet for the young, for old age and sickness; personal hygiene, care of the sick, disinfection, safe use of drinking water, drainage, heating, lighting, and ventilating; the selection of a site, building materials, finishing of the house and decoration; dairy and poultry work, gardening, and fruit raising for women.

The course begins in December and continues uniformly with the other winter courses until the last of February. This is especially convenient for those where other members of the family are coming to Cornell for a course in horticulture, agriculture, dairy or poultry, thus affording an opportunity for pleasant and inexpensive living in Ithaca during the winter.

* * *

The growth of the College of Agriculture is strikingly seen in the additions to and promotions among the faculty.

Professors Lyon, Warren, Stocking and Judson who come in new capacities to meet the increasing needs of the college will make a strong addition to the faculty. Special mention of them will be found in following columns of this number.

Doctor Riley and Doctor MacGillivray have each received the position of Assistant Professor of Entomology.

Mr. Whetzel is Assistant Professor of Botany.

Dr. Needham will be Assistant Professor of Limnology but will not assume his duties till after the first term.

Mr. Harper has been promoted to instructor in Animal Husbandry.

Mr. H. L. Ayres and Mr. H. E. Ross are Assistants in Dairy Industry.

Mr. C. H. Van Auken has been made Assistant in Animal Husbandry.

Mr. J. E. Coit is Assistant in Horticulture. He will have especial charge of the experimental work. This year he will be occupied with the bibliography of peonies.

Mr. Hunn will have charge of the laboratory work of the Nature Study students in the forcing houses. When the new buildings are completed he will have charge of the grounds surrounding them.

Mr. Griffiths will be Gardener, taking Mr. Hunn's place at the Forcing Houses.

* * *

Lowell B. Judson, A. B.; B. S. recently appointed Assistant Professor of Horticulture was born thirty years ago in Lansing, Michigan. His early school life and preparatory work for college were passed in Lansing. He entered North Western University in 1894, completed one year and entered the sophomore class the following year in Harvard, from which he graduated with the degree of A. B. in 1898. He then entered the Michigan Agricultural College spending two years in undergraduate and graduate work. His vacations during this time were spent in field and greenhouse work in the Department of Horticulture. On the completion of his graduate requirements in 1901, he was elected to the chair of horticulture in the University of Idaho, which he has filled most acceptably. Mr. Judson has contributed some excellent bulletins to the literature of horticulture while in Idaho. He is now making a tour of California and the Gulf states gathering material for the courses he will offer in Cornell.

* * *

FORMER STUDENTS

'91 B. S. in Agr., '05 Ph. D.—Pro-

fessor Thomas Lyttleton Lyon after taking his first degree at Cornell went to the University of Nebraska as Instructor in Chemistry and Assistant Chemist of the Experiment Station spending his time largely in analytical chemistry. In 1893-94 Prof. Lyon studied at Goettingen, Germany, and returned to Nebraska where he was made Assistant Professor of Agronomy in 1895. In 1900 he was made Professor of Agronomy and Assistant Director of the Experiment Station and in 1905 received his degree as Doctor of Philosophy.

While at Nebraska Professor Lyon's work was of the very highest order and his experiments careful,



PROF. T. L. LYON

accurate, and productive of very beneficial results to the state. Nearly one-half the bulletins published by the Nebraska station during the last eleven years are the result of the work of Professor Lyon. His work toward the introduction of "dry soil" crops into the more arid regions of Nebraska have revolutionized the

popular sentiment in regard to the crop producing power of those lands. His efforts toward the dissemination of Durham wheat, Kherson oats and brome grass were highly successful. Corn being the largest crop of Nebraska, his attention was much given in that direction. He has had much to do with the organization of the system of seed-specials which the railroads are now sending out in the interests of better agriculture. During the past three years Professor Lyon has been a collaborator in two of the bulletins on breeding published by the Bureau of Plant Industry. Professor Lyon comes to Cornell under the new title of Professor of Experimental Agronomy and will devote his time almost entirely to research work in soils.

'98 B. S. A., '02 M. S. A.—Professor W. A. Stocking, Jr., was born and

studied at the Connecticut Agricultural College where in 1895 he received the degree of Bachelor of Agriculture. He later came to Cornell and in 1898 received his B. S. A. and in 1902 M. S. A., taking his major subject in bacteriology. Professor Stocking comes from Connecticut where he has been head of his department and has done much research work there particularly in Dairy bacteriology. His results include: A method for the quantitative determination of insoluble dirt in milk; Effect of centrifugal separation upon the keeping quality of milk; Distribution and species of bacteria in the udder of the cow; Practical value of partially covered pails for milking; Influence of various stable conditions upon the wholesomeness of milk; Numbers and species of bacteria found in market milk produced under different conditions; Studies with milking machines; Investigation of commercial starters; Bacteriological studies in connection with the manufacture of Camembert cheese.

Professor Stocking now occupies the position of Assistant Professor of Dairy Bacteriology at Cornell and during 1906-7 will conduct a course in Dairy Bacteriology.

'03 B. S. A., '05 Ph. D.—Professor George Frederick Warren was reared on his father's nursery and fruit farm in Nebraska. In 1897 he received the degree of Bachelor of Science at the University of Nebraska and then taught in the schools of his native state for five years. He then studied at Cornell where he received the degree of Bachelor of the Science of Agriculture in 1903. During the year 1903-4 he was Fellow in Agriculture at the University and Editor of *THE CORNELL COUNTRYMAN*. During the summers of 1903 and 1904 he made the orchard surveys of Wayne and Orleans counties. In 1905 he received the degree of Doctor of Philosophy and immediately afterward went as Horticulturist to the New Jersey Experiment Station. He now comes to



PROF. W. A. STOCKING, JR.

reared on a large dairy farm and after receiving his secondary education

Cornell as Assistant Professor of Agronomy. THE COUNTRYMAN is proud of Professor Warren and Professor Warren says he is proud of THE



PROF. G. F. WARREN

COUNTRYMAN much of the success of which is due to his personal efforts during its first year.

'02 B. S. A., '05 M. S. A.—George W. Hosford who was last year Supervisor of the Farmers' Reading Courses is associated with G. Harold Powell on problems of fruit transportation and storage. Mr. Hosford is Scientific Assistant in Pomology, Bureau of Plant Industry Dept. of Agr., Washington, D. C.

'04 B. S. A.—C. A. Rogers who has been specializing in poultry and fruit on the home farm is again back to Cornell for a few weeks. He is to pursue special investigations in poultry.

'05 B. S. A.—Floyd J. Porter who has until lately occupied the position of Patent Examiner in the Patent Office has received the position of Food Analyst under the recent "Pure Food Law" and will be located in Cincinnati.

'05 B. S. A.—R. C. Simpson who has been spending the spring and summer at his father's nurseries near Vincennes, Ind., will return during

October to his pecan plantation at Monticello, Fla.

'06 B. S. A.—C. R. A. Bues started during August for Lima, Peru. Bues was to travel extensively through the Southern States and then expected to sail from New Orleans. He will be agricultural manager in Peru of a very large corporation which there owns estates of several hundred thousand acres. The first year of Mr. Bues stay will be devoted almost solely to an inspection of the immense lands of the company.

'06 Special—Lowell B. Gable is superintendent of the Glen Gable Stock Farm at Wyebrooke, Penna., which is owned by his father. Mr. Gable is now engaged in evolving a large pure-bred Guernsey herd. Besides high grade milk, the farm produces Guernsey calves, Percheron horses, and Chester White swine.

'06 Special—Bronson H. Hawkins is managing the large farm near Syracuse of which his father is the owner. The farm is chiefly devoted to the production of milk from pure bred Jersey cows.

'06 Gr.—L. F. Paull has accepted the position of Assistant Horticulturist at the University of Colorado.

'93 W.—Harry C. Bush last year purchased the homestead of 118 acres in the town of Fleming, Cayuga County. He is engaged in general farming. As many other farmers, he finds the question of labor the hardest of all to solve and calls on THE CORNELL COUNTRYMAN to find a remedy for the increasing evil.

'04 W.—Chase Benjamin has a farm at Cohocton, N. Y. His specialty is potatoes. Everything else in the farming line is made subservient to that crop. He says that he cannot too strongly recommend the Winter Course to all farmers' boys.

'05 W.—Howard H. King has been on his father's farm at Athens, N. Y., since he left Cornell. He is conducting general farming.

BOOK REVIEW

HOW TO CHOOSE A FARM WITH A DISCUSSION OF AMERICAN LANDS, WITH A BOOK REVIEW by Thomas F. Hunt, The Macmillan Co., New York, 8 vo., 412 pgs., \$1.75.

Prof. Hunt's latest contribution to the literature of American agriculture came from the press during the past summer. The book naturally divides itself into two parts; a treatise on the selection of a farm for profit, and a discussion of American lands from the point of view thus demonstrated. The first was evidently inspired by the evident lack on the part of many persons of concrete knowledge of what a farm should be to yield a profit; and the second by the difficulty sometimes experienced, to find a fair estimate of different sections in their comparative agricultural value. The prospective purchaser is often unable to gain the information he desires among the mass of governmental statistics and rightly turns with suspicion from the glowing circulars of the railroads and land companies.

The factors to be considered in the selection of a farm are treated in the first eleven chapters. The farm is viewed entirely as a business proposition and the considerations are set forth as logically and clearly as if it were a factory or store that was to be purchased. The method has been rendered familiar to students in some of Professor Hunt's lectures at the college. Sample score-cards for farms are shown as illustrations and the use of the score-card explained. A "farm problem" is given in detail and the summary history of thirty typical farms for three years.

The second division of nine chapters, comprising almost three hundred pages, is a discussion by sections of the lands of America from Alaska to Argentina. The continent is divided into thirty natural sections each of which is treated separately from the point of view shown on the score-card of the farm run for profit. Each section is illustrated by a map and

views. The matter on most of the sections has been read and approved by persons living in them. The volume also has an appendix which comprises information for the acquiring of public lands and the transfer of real estate, several pages of statistics, a bibliography, and an index. Professor Hunt's books are full of valuable information and show at a glance the immense amount of labor that has been put into their making. "How to Choose a Farm" will be as invaluable to every student of American agriculture as "Cereals in America" has proved itself to be. Concise, clear, and simple treatises of the fundamentals are so rare in any science that their publication may be looked upon as an important event.

* * *

MODERN METHODS OF TESTING MILK AND MILK PRODUCTS by Lucius L. Van Slyke. Orange Judd Company, New York, 8 vo., 205 pgs., 75 cents.

This little book has been prepared in order to make it possible for persons to do accurate work in testing who have had no instruction in it and who would have to gain all their information from such a book. It is clear, comprehensive and careful in its instructions. The chapters are divided into sub-topics so that reference work is made easy with the help of the index. The illustrations while profuse are not all good as some are somewhat crude and a few are indistinct. The methods explained are such that no previous chemical training is required to operate them and all intricate and difficult processes have been avoided wherever possible. An especially interesting chapter is that given to the "Arithmetic of Milk and Milk Products" in which the various rules for the processes employed are duly explained. This should prove especially valuable. The book as a whole is excellent and deserve its place among dairy text-books.

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NATIVE NUTS